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EXAMINER	
MAIS, MARK A	

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2616	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/045,348	SHIN ET AL.	
	Examiner	Art Unit	
	Mark A. Mais	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 April 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,5-18 and 22-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,5-18 and 22-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 22 is objected to because of the following informalities: it depends from cancelled claim 19. For examination purposes, it will be interpreted as depending from claim 17. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 5-18, and 22-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Latif et al.

4. With regard to claims 1, 5, 9, 13, and 15, Latif et al. discloses a method for transmitting packets through a network *having multiple paths* **[Fig. 2, IP network 60; an IP network is interpreted as using multiple paths between SoIP device 50 to Fiber storage device**

(through switch 35)] between a first communications node **[Fig. 2, SoIP device 50]** and a second communications node **[Fig. 2, Fiber storage device]**, the method comprising:

transmitting from the first communications node to the network a first sequence of packets **[Fig. 2, SoIP Device 50 (host—claim 5) transmitting packets to IP network 60]**;

transmitting from the network to the second communications node the first sequence of packets in sequential order **[Fig. 2, packets are transmitted through IP network 60 and switch 35 to Fiber storage device (data store device—claims 5, 9, and 15)]**;

transmitting from the second communications node to the network a second sequence of packets **[Fiber storage device transmits packets to SoIP device 50 through IP network 60 and switch 35]**; and

transmitting from the network to the first communications node the second sequence of packets in a non-sequential order **[Fig. 2, SoIP device 50 receives packets from Fiber Storage Device through switch 35 and IP network 60; IP network delivery of packets is interpreted as non-guaranteed sequential order]**

whereby sequential order is guaranteed when packets are received by the second communications node *by transmitting the first sequence of packets along the same path in the network* **[Fig. 2; Fiber channel requires a serial interface, col. 6, line 14; a serial connection (same path) is interpreted as guaranteed sequential order (one transmission is one transaction—claim 13)]** and is not guaranteed when packets are received by the first communications node **[Fig. 2, SoIP device 50 receives packets from Fiber Storage Device through switch 35 and IP network 60; IP network delivery of packets is interpreted as non-**

guaranteed sequential order] *by transmitting at least two packets of the second sequence of packets along different paths in the network.*

Latif et al. discloses **[Fig. 2]** an SoIP device 50 which receives packets from Fiber Storage Device through switch 35 and IP network 60. Furthermore, IP network delivery of packets is interpreted as non-guaranteed sequential order due to multiple paths in an IP network/cloud **[Fig. 2]**. Latif et al. does not specifically disclose that at least two packets travel along different paths. However, it is well known in the art that packets traveling through an IP network can (and do) travel along different paths. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention that packets would travel along different IP network paths because that is the nature of an IP network/cloud which does not have any service guarantees (i.e., only uses "best effort" to get packets form one point to another without concrete guarantees on path, time, or sequence).

5. With regard to claims 17, 18, 23, and 24, Latif et al. discloses a method for transmitting packets from a first communications device **[Fig. 2, SoIP device 50]** to a second communications device **[Fig. 2, Fiber storage device]** *across a switching network having multiple paths* **[Fig. 2, IP network 60; an IP network is interpreted as using multiple paths between SoIP device 50 to Fiber storage device (through switch 35)]**, the method comprising:

transmitting a sequence of packets from the first communications device to the second communications device *along a single path in the switching network* **[Fig. 2, SoIP Device 50 transmitting packets through IP network 60 and switch 35 to Fiber storage device (data store device—claims 23 and 24)]** wherein the packets arrive at the second communications

device in an order that is guaranteed to be sequential **[Fiber channel requires a serial interface, col. 6, line 14; a serial connection (single path) is interpreted as guaranteed sequential order (one transmission is one transaction—claim 18)]**; and

transmitting a sequence of packets from the second communications device to the first communications device *along multiple paths in the switching network* **[Fiber storage device transmits packets to SoIP device 50 through IP network 60 and switch 35]**; wherein the packets arrive at the first communications device in an order that is not guaranteed to be sequential **[Fig. 2, SoIP device 50 receives packets from Fiber Storage Device through switch 35 and IP network 60; IP network delivery of packets is interpreted as non-guaranteed sequential order due to multiple paths in an IP network/cloud].**

Latif et al. discloses **[Fig. 2]** an SoIP device 50 which receives packets from Fiber Storage Device through switch 35 and IP network 60. Furthermore, IP network delivery of packets is interpreted as non-guaranteed sequential order due to multiple paths in an IP network/cloud **[Fig. 2]**. Latif et al. does not specifically disclose that the packets transmitted from the second device to the first device travel along different paths. However, it is well known in the art that packets traveling through an IP network can (and do) travel along different paths. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention that packets would travel along different IP network paths because that is the nature of an IP network/cloud which does not have any service guarantees (i.e., only uses "best effort" to get packets form one point to another without concrete guarantees on path, time, or sequence).

6. With regard to claims 25, 26, 28, 29, and 30, Latif et al. discloses a device **[Fig. 2, switch 35 (claim 26)]** for transmitting packets of a transaction between a host **[Fig. 2, SoIP device 50]** *and* a data store device **[Fig. 2, Fiber storage device (claim 30)]** comprising:

a component **[Fig. 2, one port (claim 28) of switch 35 which is connected serially to Fiber storage device]** that receives in sequential order packets of a transaction that are to be transmitted from the host and *transmits* in sequential order the packets of the transaction to the data store device wherein the packets of the transaction arrive at the data store device in an order that is guaranteed to be sequential *because the packets are routed along a single path* **[Fiber channel requires a serial interface, col. 6, line 14; a serial connection (single path) is interpreted as guaranteed sequential order]**; and

a component **[Fig. 2, the ports (claim 28) of switch 35 multiply-connected to IP network 60; this switch is interpreted as multiple input/multiple output switch which utilizes multiple outputs for connection to IP network 60 (and SoIP 50—claim 29) and one serial output to fiber storage device]** that receives packets of a transaction from the data store device *in non-sequential order* and *transmits* the packets of the transaction to the host wherein the packets of the transaction arrive at the host in an order that is not guaranteed to be sequential *because the packets are routed along multiple paths* **[Fig. 2, SoIP device 50 receives packets from Fiber Storage Device through switch 35 and IP network 60; IP network delivery of packets is interpreted as non-guaranteed sequential order; IP network 60 is interpreted as using multiple paths between SoIP device 50 to Fiber storage device (through switch 35)]**

Latif et al. discloses **[Fig. 2]** an SoIP device 50 which receives packets from Fiber Storage Device through switch 35 and IP network 60. Furthermore, IP network delivery of

packets is interpreted as non-guaranteed sequential order due to multiple paths in an IP network/cloud **[Fig. 2]**. Latif et al. does not specifically disclose that the packets transmitted from the second device to the first device travel along different paths. However, it is well known in the art that packets traveling through an IP network can (and do) travel along different paths. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention that packets would travel along different IP network paths because that is the nature of an IP network/cloud which does not have any service guarantees (i.e., only uses "best effort" to get packets form one point to another without concrete guarantees on path, time, or sequence).

7. With regard to claim 6, Latif et al. discloses that SoIP Device 50 transmitting packets through IP network 60 and switch 35 to Fiber storage device **[Fig. 2]**. Moreover, Fiber channel requires a serial interface **[col. 6, line 14]**. A serial connection is interpreted as guaranteed sequential order. Latif et al. does not specifically disclose caching data from a computer program write operation to a storage area network. It is well known in the art that computer programs can access storage area networks for both read and write functions. Furthermore, a write sequence to a storage area network necessarily requires the data to be saved in cache or RAM until the data can be transmitted over the network. This is done to free up resources for multiple processes being executed by the processor executing the computer program. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention that a host's write operation data would be cached during transmission to a storage network because of timing, propagation delays, and errors in transporting the data to the storage area network.

8. With regard to claim 7, Latif et al. discloses **[Fig. 2]** an SoIP device 50 which receives packets from Fiber Storage Device through switch 35 and IP network 60. Furthermore, IP network delivery of packets is interpreted as non-guaranteed sequential order due to multiple paths in an IP network/cloud **[Fig. 2]**. Latif et al. does not specifically disclose halting the execution of a computer program until it receives necessary data form a data storage network. However, it is well known in the art that packets traveling through an IP network can (and do) travel along different IP network paths because that is the nature of an IP network/cloud which does not have any service guarantees (i.e., only uses "best effort" to get packets form one point to another without concrete guarantees on path, time, or sequence). It is also well known in the art that computer programs can access storage area networks for both read and write functions. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention that that a processor would halt execution of a program (read operation) until it received the correct/timely data needed for further execution of the program because the data might be delayed/unreadable due to propagation delays, out-of-sequence or resequencing delays, or dropped packets during that read operation.

9. With regard to claim 8, Latif et al. discloses that the second communications node does not have a capability to reorder a sequence of packets **[Fig. 2, fiber storage device; since fiber is transmitted serially, it does not need to perform packet resequencing; this is interpreted as not having the capability to reorder a sequence of packets]**.

10. With regard to claim 10, Latif et al. discloses that the first communications node has a capability to reorder a sequence of packets **[Fig. 2, SoIP devices 50 within SoIP storage area network, col. 6, lines 6-8; since SoIP device 50 works using IP, it necessarily need to resequence packets received out of order from the IP network; this is interpreted as having the capability to reorder a sequence of packets]**.

11. With regard to claims 11 and 12, Latif et al. discloses that the network includes switches that transmit the packets of the second sequence on different paths to effect load balancing **[routing within IP networks is performed by switches and routers (col. 17, lines 12-16) using load balancing (col. 17, lines 10-12) with respect to the detected "conversations" (related frames , col. 16, lines 55-57 (same transaction—claim 12); this is interpreted as the load-balanced transmission of packets from Fiber storage device to SoIP 50 through IP network 60]**.

12. With regard to claims 14, 22, and 27, Latif et al. discloses that the first communications node, the second communications node, and the network are part of a storage area network **[Fig. 2; col. 6, lines 6-8]**.

13. With regard to claim 16, Latif et al. discloses that the second communications node does not have an ability to reorder packets of a transaction **[Fig. 2, fiber storage device; since fiber is transmitted serially, it does not need to perform packet resequencing; this is interpreted as not having the capability to reorder a sequence of packets]**.

Response to Arguments

14. Applicant's arguments filed have been fully considered but they are not persuasive.

15. With respect to claims 1, 17, and 25, Applicant argues that Latif et al. fails to disclose, teach, or suggest that the packets are transmitted along the same path in one direction and along multiple paths in the reverse direction **[Applicant's Amendment dated April 4, 2007, page 7, paragraph 3]**. The examiner respectfully disagrees.

16. As noted above in the rejection of claim 1, for example, Latif et al. discloses that Fiber channel requires a serial interface **[Fig. 2; col. 6, line 14]**. Thus, a serial connection (same path) is interpreted as guaranteed sequential order. SoIP device 50 **[Fig. 2]** receives packets from Fiber Storage Device through switch 35 and IP network 60 wherein IP network delivery of packets is interpreted as non-guaranteed sequential order. Although Latif et al. does not specifically disclose that at least two packets travel along different paths, it is well known in the art that packets traveling through an IP network can (and do) travel along different paths. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention that packets would travel along different IP network paths because that is the nature of an IP network/cloud which does not have any service guarantees (i.e., only uses "best effort" to get packets form one point to another without concrete guarantees on path, time, or sequence).

17. Applicant further argues that Latif et al. does not disclose routing differently depending on the direction of communication between the two communication nodes **[Applicant's Amendment dated April 4, 2007, page 8, paragraph 2]**. Applicant argues, apparently, that although the packets in Latif et al. are delivered sequentially to a node in one direction and non-sequentially to the other node in the reverse direction, when contrasted to Applicant's invention, the method/type of routing does not change **[Applicant's Amendment dated April 4, 2007, page 8, paragraph 2]**. The examiner respectfully agrees.

18. First, if Applicant is arguing that a specific routing protocol/method is being used, the examiner does not see such a limitation in the claims. Accordingly, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., guaranteed delivery along one path using a specific routing protocol/method in one direction and non-guaranteed delivery along multiple paths using a specific routing protocol/method in the reverse direction) are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

19. Second, if Applicant is arguing that a serial interface, a virtual circuit, a virtual path, or a tunnel (e.g., MPLS) is used in one direction for guaranteed delivery and that IP routing is used for the non-guaranteed delivery in the reverse direction, the examiner does not see such a limitation in the claims [e.g., DSL provides guaranteed virtual pipes (VCs/VPs) from the internet

to the residential customer and non-guaranteed links from the residential customer to the internet]. Accordingly, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., guaranteed delivery in one direction using a serial interface, a virtual circuit, a virtual path, or a tunnel (e.g., MPLS) and non-guaranteed delivery in the reverse direction using IP routing) are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

20. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

21. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

(a) Kuik et al. (USP 7,165,258), SCSI-based storage networks having a SCSI router that routes traffic between SCSI and IP networks.

(b) Miyamoto et al. (USP 7,106,751), Apparatus for linking a SAN with a LAN.

(c) Berman (USP 6,904,053), Fibre channel switching fabric.

(d) Thomson (USP 6,895,461), Method and apparatus for accessing remote storage using SCSI and an IP network.

(e) Young (USP 6,883,042), Method and structure for automatic SCSI command delivery using the packetized SCSI protocol.

(f) Zeidner et al. (USP 6,865,617), System maps SCSI device with virtual logical unit number and multicast address for efficient data replication over TCP/IP network.

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark A. Mais whose telephone number is 572-272-3138. The examiner can normally be reached on M-Th 5am-4pm.

24. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chan F. Wing can be reached on 571-272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

25. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MAM
June 16, 2007

7/9/07
WING CHAN
SUPERVISORY PATENT EXAMINER